



0512-57107368



Flexible Transport System

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FHS 烽禾升集团
FENGHESHENG GROUP

www.ksfhs.com

GROUP OVERVIEW



2010

Founded in 2010

2500+

2500+ Employees around the world

Established in 2010, FHS is headquartered in Kunshan, Jiangsu Province, and is committed to delivering cost-effective and well-engineered automation solutions. The company continuously redefines assembly automation and provides world-class intelligent, digital, and flexible production solutions to leading global clients in the new energy sector, automotive OEMs, and automotive component industries.

With over a decade of experience in R&D for production line equipment and a proven track record in delivering intelligent, high-standard projects worldwide, FHS has established itself as an industry leader in the manufacturing of power batteries, energy storage products, motors, and electronic control systems. The company has earned multiple accolades from clients, including distinctions such as "Five-Star Supplier," "Excellent Supplier," "Best Customer Satisfaction Award," and recognition as an "Advanced Team in Production Guarantee."

Drawing on extensive project experience and technological expertise in new energy, medical, and automotive automation, FHS continues to break new ground in smart magnetic drive and maglev transport technology. Its FTS intelligent maglev transport system has received widespread recognition, including the 2023 Zu Chongzhi Excellent Plan Gold π Award and selection as a 2024 Suzhou Key Core Technology Breakthrough Project. FHS delivers high-intelligence, high-flexibility, high-value transport solutions for smart manufacturing.

With a strong base in East China, FHS's influence spans nationwide and globally. It operates branches and subsidiaries in key Chinese cities like Wuhu, Wuhan, Chongqing, Shenzhen and Dalian. Internationally, FHS has expanded with subsidiaries in the United States, Germany and Hungary, maintains a robust after-sales service network and partnerships across several countries, including Spain, France, Czech Republic, Romania, Mexico, Poland, India, and South Korea showcasing its expansive and diverse global footprint.

Intelligent Manufacturing Business Core Data At A Glance

Top global customers	30+	Proportion of R&D headcount	60% (average working experience >8 years)	Patents
Lines of Business	3	Equipment delivery capability	100+ per year	Intelligent Research Institute
Simultaneous delivery capacity	USD 150 million+	Production	150k+ m ²	Laser Lab
Project experience	3000+	Standardized process in library	5000+	Software Lab

FHS Global Headquarters, Kunshan



FHS Wuhu Company



CORPORATE CULTURE

VISION

To become a prestigious
global smart
manufacturing enterprise

MISSION

To seek happiness
for employees
To create value for partners

VALUES

Customer orientation;
Perseverance;
Innovation;
Sharing value

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- 01** · Group Profile
- 02** · Flexible Transport System
- 03** · Product Series & Selection Guide
- 04** · Software Platform
- 05** · Overview of FHS Maglev Solutions

FTS Flexible Transport System

Utilizing linear motor technology, the FTS precisely controls electromagnetic force to drive magnet-equipped mover with speed and precision. Designed for intelligent manufacturing, this advanced transfer system combines magnetic drive motor modules, a control system, and a circular guide rail to deliver high-speed, high-precision, and highly flexible transport.



High Efficiency

High speed and acceleration
High precision, no secondary positioning needed



Smart Control

Distributed, parallel debugging
Accelerated production, greater efficiency



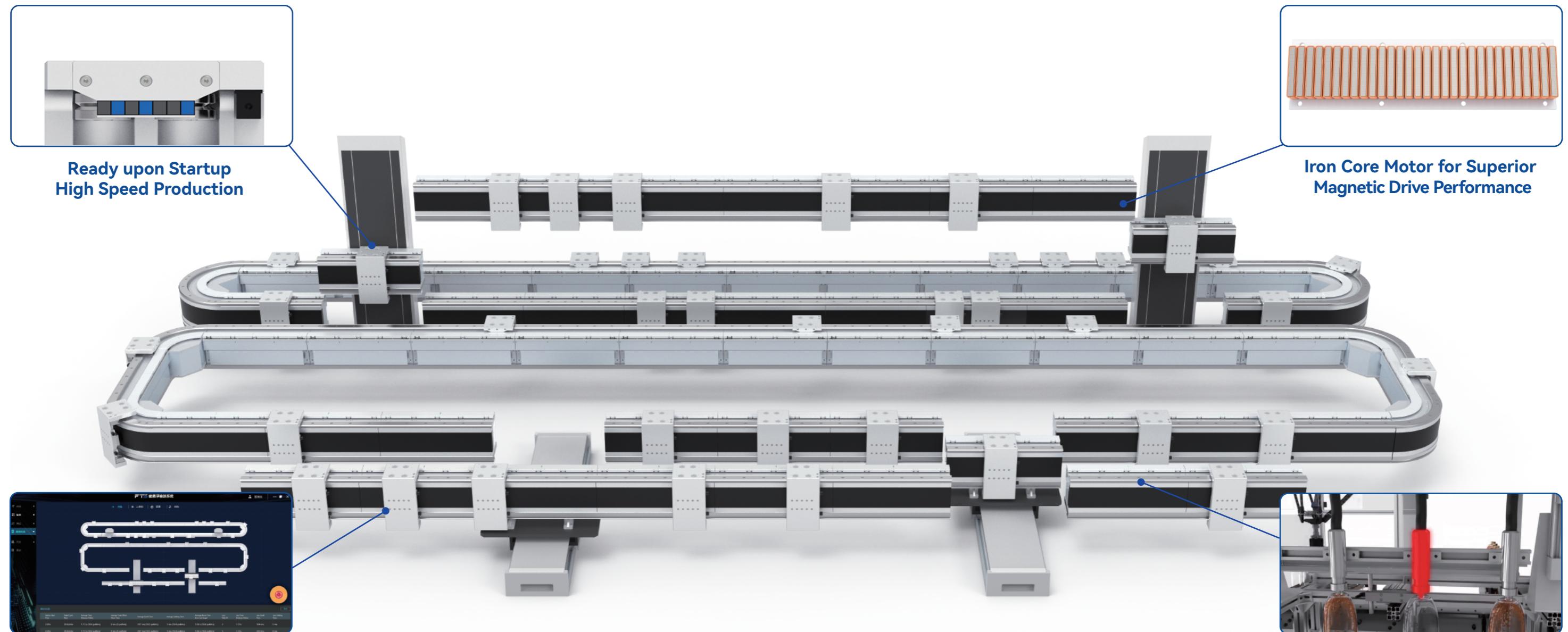
Flexible & Modular

Modular design
Each mover independently controlled



Space Saving

Compact module footprint
Minimizes need for secondary handling



Ready upon Startup
High Speed Production

Iron Core Motor for Superior
Magnetic Drive Performance



Visual Scenario Creation
What You See Is What You Get



Defect Detection
Efficient Scheduling



FTS Medium Thrust Series (FTS-MT)

	±0.01 mm Repeatability		5-40 kg Single Mover Load Range		847 N Max. Thrust		5 m/s Max. Speed
	Quick mover and tooling replacement for different product types		Modular design adapts to various production needs				
	Customizable workstations with expandable motor integrated modules and movers		Designed for long-term use with multiple product iterations and process upgrades				
	Motor integration modules for both straight and curved sections, and multiple mover modules can be controlled simultaneously		High-precision positioning for both straight and curved sections				

Basic Parameters

Motor integrated module	C050		C075	
Magnetic plate width (mm)	80	120	160	120
Peak thrust (N)	290	435	580	635
Max. Speed (m/s)	5		4	
Typical load (kg)			≤40	
Repetitive positioning accuracy (mm)	±0.01			
Power supply voltage (V)	DC 48			
Configuration software	iFTS-Studio			
Communication interfaces	EtherCAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK			
Max. Number of modules	255			
Max. Number of movers	255			
Production line expandability	Both software and hardware support modular expansion			

FTS Layouts

Workpiece Mounting Methods



Circular Transport Line



Rectangular Transport Line



Mounting on the rail top



Mounting on the rail slide



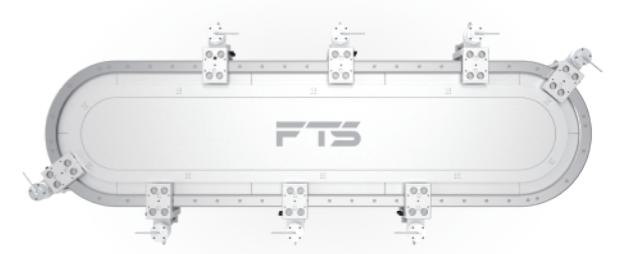
Horizontal Transport Line



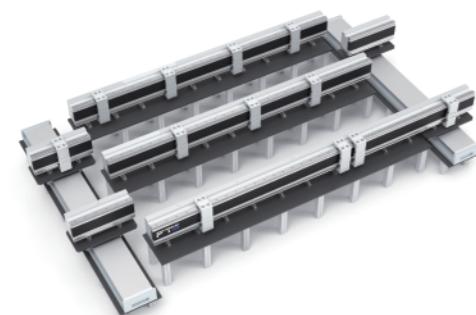
Rotary Ferry Line



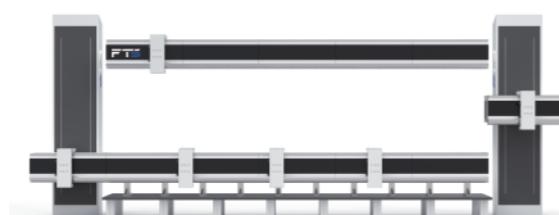
Vertical Side-load



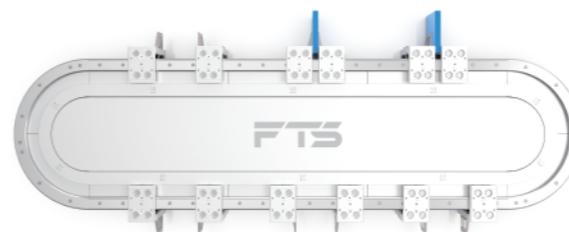
Vertical Top-load



Horizontal Ferry Line



Vertical Ferry Line



Vertical Dual-mover Load



Horizontal Dual-mover Load

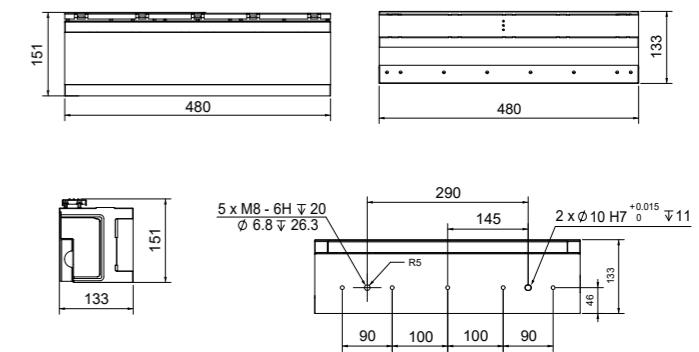
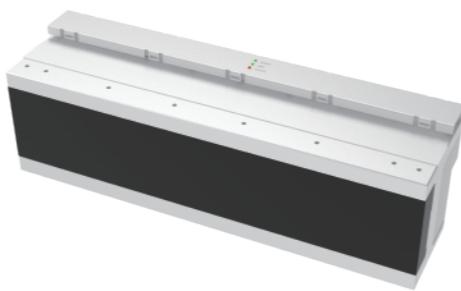
Motor-Integrated Module Model Specifications

FTS-MT-S-L0480-C050040-F0 X

Special Spec:	Blank : standard
Function Code:	F0 : IP20, no oiling port F1 : IP20, with oiling port F2 : IP65, no oiling port F3 : IP65, with oiling port
Coil Size:	050040 : 50mm*40mm 075040 : 75mm*40mm
Motor Spec:	L0480 : 480mm straight module A0900 : 90° curved module
Module Type:	S : Motor-integrated straight module
Series:	MT : Medium Thrust Line
Category:	FTS : Flexible Transport System

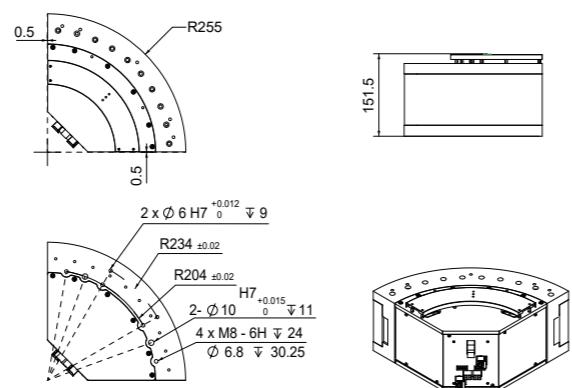
FTS-MT-S-L0480-C050040-F0 / C075040-F0

C050040 Wt: 11.60kg C075040 Wt: 13.30kg



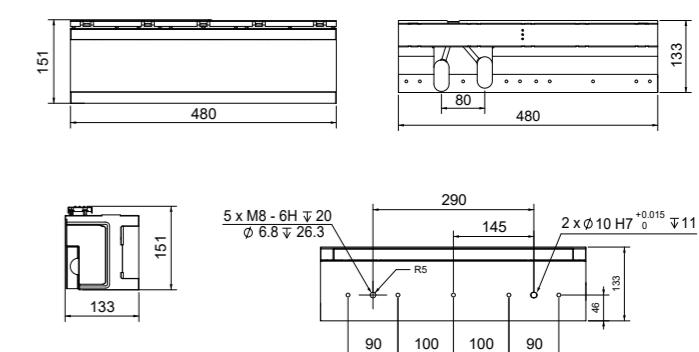
FTS-MT-S-L0480-C050040-F0

Wt: 8.30kg



FTS-MT-S-L0480-C050040-F1 / C075040-F1

C050040 Wt: 11.60kg C075040 Wt: 13.30kg



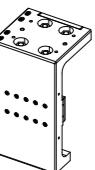
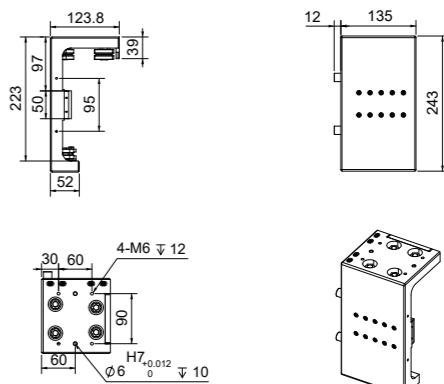
Mover Module Model Specifications

FTS-MT-M-L0160-W050-F0 X

Special Spec: Blank : standard
 Function Code: F0 : Standard
 F1 : Real-time mover ID recognition
 Magnetic Plate Height: 050 : 50mm
 075 : 75mm
 Magnetic Plate Length: L0080 : 80mm
 L0120 : 120mm
 L0160 : 160mm
 Module Type: M : Mover module
 Series: MT : Medium Thrust Line
 Category: FTS : Flexible Transport System

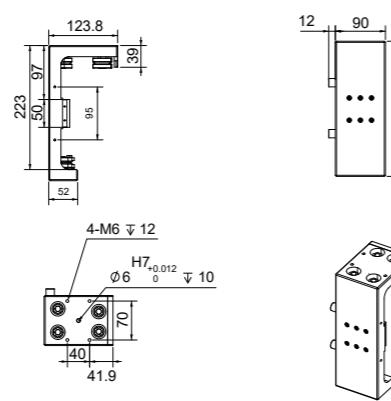
FTS-MT-M-L0120-W050 / W075

W050 Wt: 3.00kg W075 Wt: 3.28kg



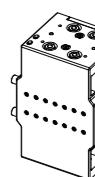
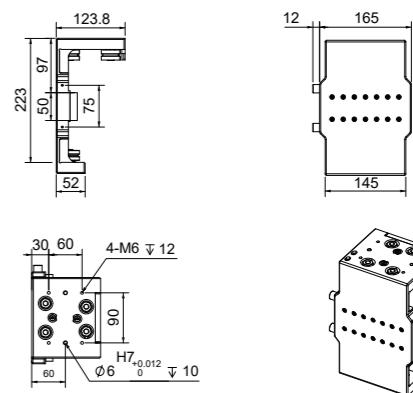
FTS-MT-M-L080-W050 / W075

W050 Wt: 2.00kg W075 Wt: 2.19kg



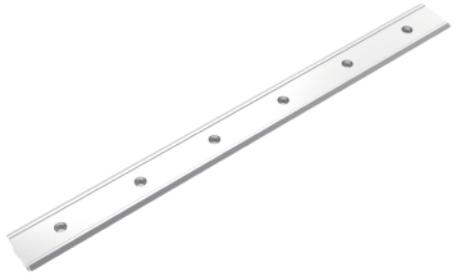
FTS-MT-M-L0160-W050/ W075

W050 Wt: 3.55kg W075 Wt: 3.93kg



FTS-MT Rail

■ Straight Module



Basic Specifications

Material	S45C
Length	Customizable
Width (mm)	44
Mounting hole spacing	Customizable

■ 90° Curved Module



Basic Specifications

Material	S45C
Inner Diameter (mm)	424
Width (mm)	44
Outer Diameter (mm)	512

■ 180° Curved Module



Basic Specifications

Material	S45C
Inner Diameter (mm)	424
Width (mm)	44
Outer Diameter (mm)	512

FTS-MT Accessories

■ Power Cabinet Module



Basic Specifications

Model	FTS-PC-06
Dimensions (mm)	560*415*153
Input Voltage (V)	AC 220
Frequency (HZ)	50/60
Rated Power (KW)	6
Output Voltage (V)	DC 24 /48

■ Controller



Basic Specifications

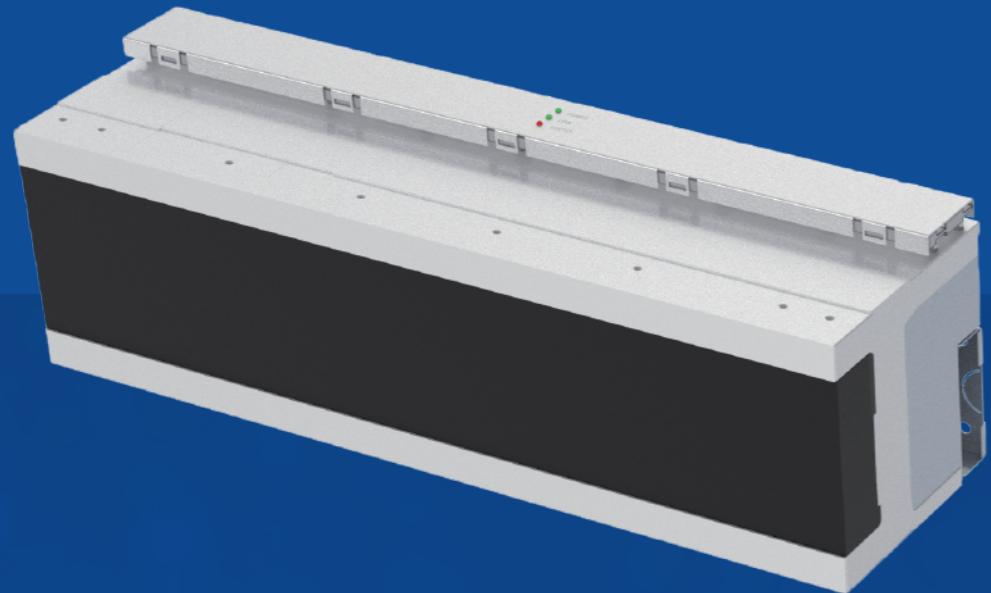
Model	FTS-CS
Power (W)	90
Input Voltage (V)	DC 24
Communication	Ether CAT Modbus/TCP
Control Length (m)	127
Max Movers	255
Temperature (°C)	-30~45
Humidity	20~90 RH (non-condensing)

■ Lubrication System



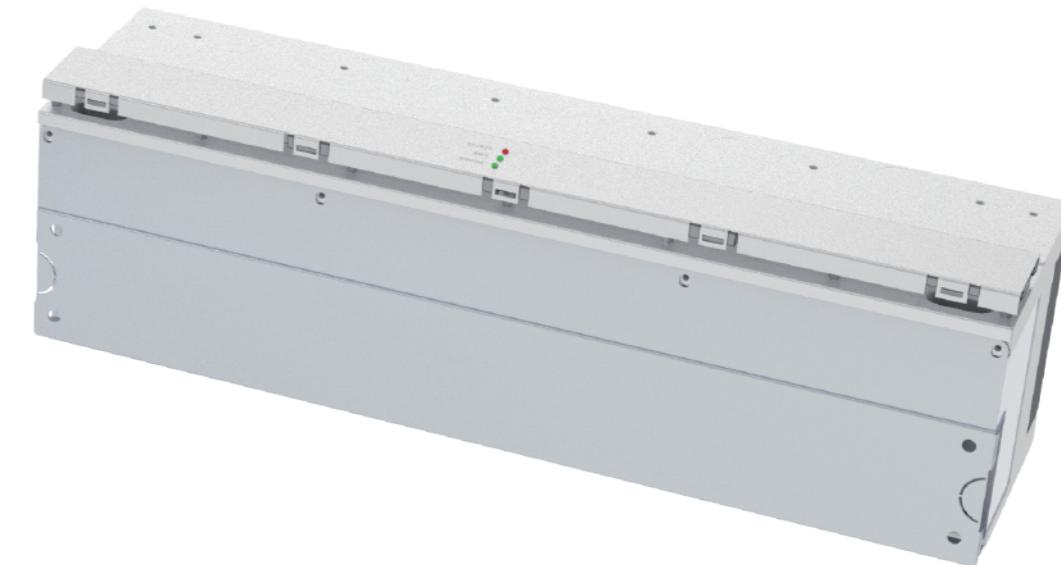
Basic Specifications

Power Source	Gas Generator
Operating Pressure (bar)	≤ 5
Timer Range (month)	1~12
Temperature (°C)	-20~55



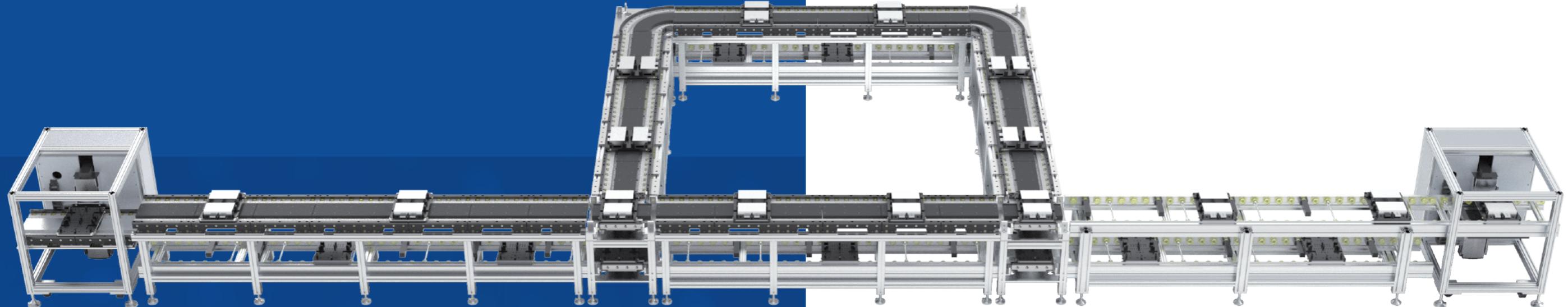
FTS-MT Lite

	±0.1 mm Repeatability		5-40 kg Load range		100 N Max. Thrust		2.5 m/s Max. Speed
	Flexible combination with the FTS - MT line						
	Quick mover and tooling replacement for different product types						
	Customizable workstations with expandable motor integrated modules and movers						
Designed for long-term use with multiple product iterations and process upgrades							



Basic Parameters

Motor integrated module	C050
Magnetic plate width (mm)	80 120 160
Peak thrust (N)	50 75 100
Typical load (kg)	≤40
Max. Speed (m/s)	2.5
Repetitive positioning accuracy (mm)	±0.1
Power supply voltage (V)	DC 48
Configuration software	iFTS-Studio
Communication interfaces	EtherCAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK
Max. Number of modules	255
Max. Number of movers	255
Production line expandability	Both software and hardware support modular expansion



FTS-Pallet Transfer (FTS-PT)

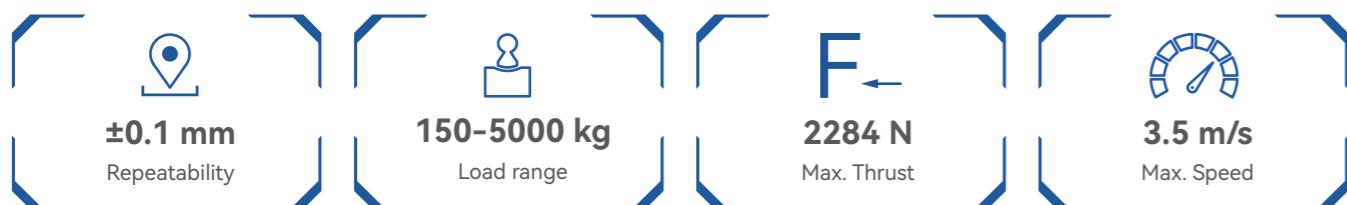
	±0.1 mm Repeatability		5-40 kg Load range		100 N Max. Thrust		2.5 m/s Max. Speed
	Flexible combination with traditional conveyor lines						
	Multifunctional module supports lateral movement, lifting and rotation for seamless product transfer						
	Mover pallets can be removed directly from the conveyor line, allowing for quick replacement						
	Modular design adapts to various production needs						
	Designed for long-term use with multiple product iterations and process upgrades						

Basic Parameters

Motor integrated module	C050
Magnetic plate width (mm)	80 120 160
Peak thrust (N)	50 75 100
Typical load (kg)	≤40
Max. Speed (m/s)	2.5
Repetitive positioning accuracy (mm)	±0.1
Power supply voltage (V)	DC 48
Configuration software	iFTS-Studio
Communication interfaces	Ether CAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK
Max. Number of modules	255
Max. Number of movers	255
Production line expandability	Both software and hardware support modular expansion



FTS High Thrust Series (FTS-HT)





Spaced motor arrangement improves efficiency and utilization



Supports heavy loads up to 5000 kg

 Quick mover and tooling replacement for different product types



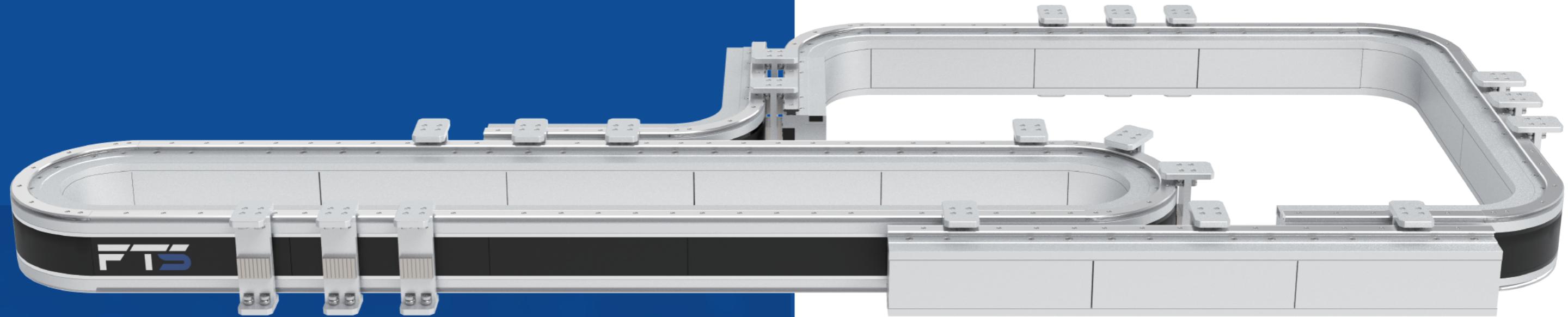
Modular design adapts to various production needs

Customizable workstations with expandable motor integrated modules and movers



Designed for long-term use with multiple product iterations and process upgrades

Basic Parameters



FTS Light Thrust Diverge Series (FTS-LT)

	±0.03 mm Repeatability		10 kg Max. Load		580 N Max. Thrust		5 m/s Max. Speed
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Double-sided magnetic plates, support for changing track easily

Forked reflux, flexible track switching

Quick mover and tooling replacement for different product types

Modular design adapts to various production needs

Customizable workstations with expandable motor integrated modules and movers

Designed for long-term use with multiple product iterations and process upgrades

Basic Parameters

Motor integrated module	C050
Magnetic plate width (mm)	80 120 160
Peak thrust (N)	290 435 580
Typical load (kg)	≤10
Max. Speed (m/s)	5
Repetitive positioning accuracy (mm)	±0.03
Power supply voltage (V)	DC 48
Configuration software	iFTS-Studio
Communication interfaces	Ether CAT Modbus/TCP PROFINET CC-Link CANopen POWERLINK
Max. Number of modules	255
Max. Number of movers	255
Production line expandability	Both software and hardware support modular expansion

iFCS Control Software

The system offers manual, automatic, and service modes, along with simulation capabilities. It features a standard PLCopen protocol interface, allowing precise individual control of each mover and supporting user-driven secondary development. The workstation scheduling function can be freely configured and combined to meet diverse production requirements, enabling customized manufacturing solutions.



Dynamic Grouping

Movers can be grouped and ungrouped during operation



External Workstation Synchronization

Support electronic gearing and cam motion operation



Intelligent Scheduling

Dynamically bypass malfunctioning stations



Position Compensation

Real-time and static compensation for greater accuracy



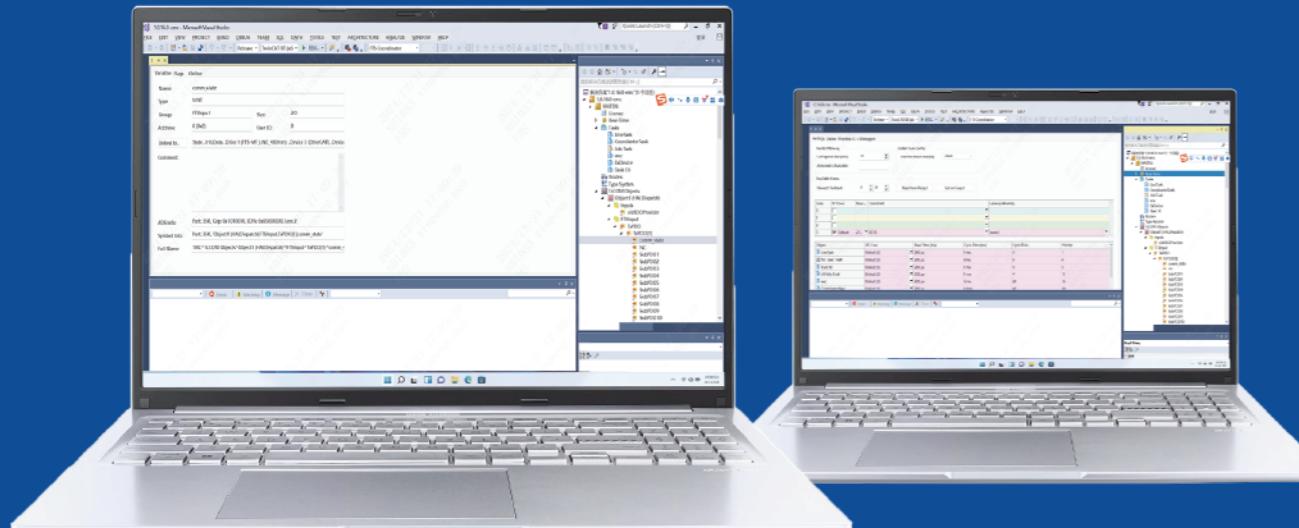
Real-time Mover ID Updates

Support custom ID assignment



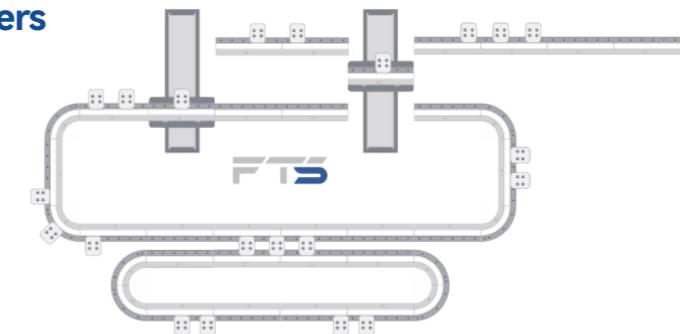
Flexible Speed Configuration

Segmented speed settings across the line



Dynamic Addition and Removal of Movers

- Movers can be added or removed online without stopping production, minimizing downtime and ensuring continuous operation.



Smart Collision Avoidance

- The proprietary collision control algorithm automatically adapts to fixture or product sizes, ensuring precise motion curve without interference.
- Independent collision control for various mover sizes and advanced planning algorithms enhance system safety.

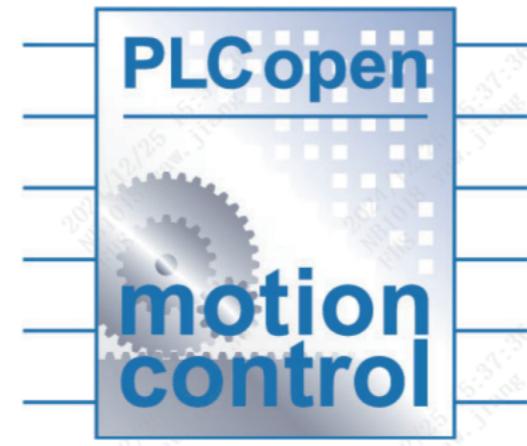


Flexible Adaptation

- Support thrust control mode, enabling it to handle different product sizes and meet diverse production requirements.

Fast Deployment

- Built on the PLCopen protocol, the planning module simplifies secondary development.
- It supports enabling/disabling single mover and convenient single-axis (single mover) control, making it easy for users to deploy the system quickly.



Synchronization with External Workstation

- Support electronic gears and cam motions.



Configurable Safety Zones

- Using safe signal control, the system can stop movers within specific track sections while allowing the rest of movers to continue.

iFTS - Studio Configuration Software

iFTS Studio simplifies configuration and debugging with intuitive graphical track building and workstation setup. It supports straight paths, loops, and diverging track topologies while enabling multi-terminal parallel debugging to speed up project delivery. The software automatically scans and updates mover counts in real time, allowing movers to be added or removed without shutting down the system. For better visualization, mover positions are displayed on both an oscilloscope and a graphical interface, offering a clear, real-time system overview.



Line Planning
Visual scene configuration



System Configuration
Independent parameter per module



Motion Control
Support up to 255 movers



System Start/Stop
Live system status monitoring



Status Monitoring
Real-time data access

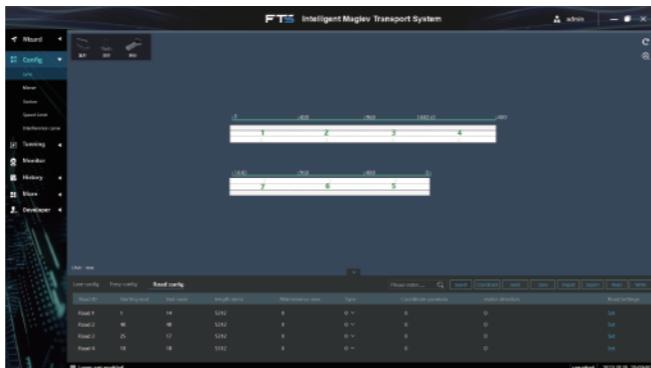


Simulation & Testing
Program preview for cycle optimization



System Configuration

- A simple GUI makes system setup quick and intuitive.
- Versatile track configuration supports offline loading, importing, and exporting of data.
- Various track topologies are available, including straight paths, loops, and diverging.



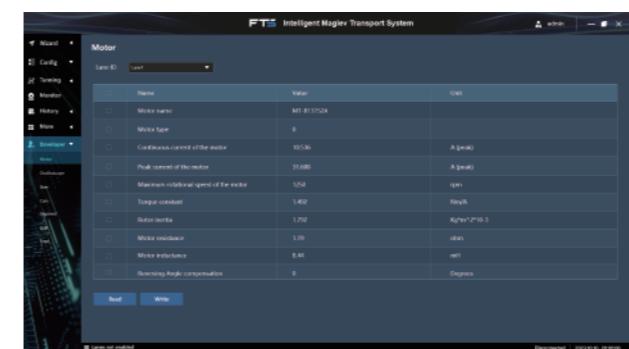
Waveform Display

- An oscilloscope provides real-time monitoring of mover positions for precise analysis.



System Monitoring

- Status lights provide real-time visibility of movers (anti-collision, limits) and conveyor sections (power bus connection, faults) for a more intuitive overview.
- The system also displays communication status for movers and conveyor sections, maintaining historical alarm records and operation logs.

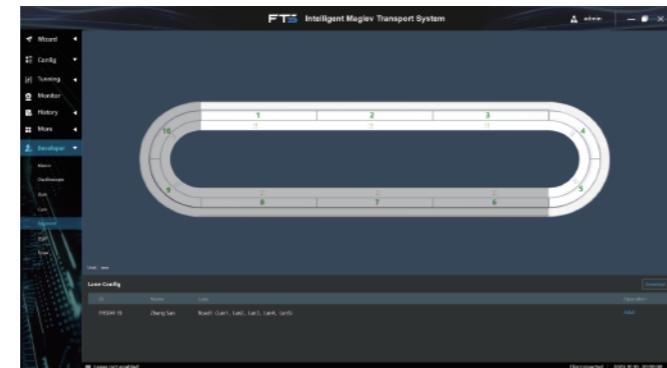


Parameter Writing

- Segment parameters can be set by module and imported with one click — faster and easier.

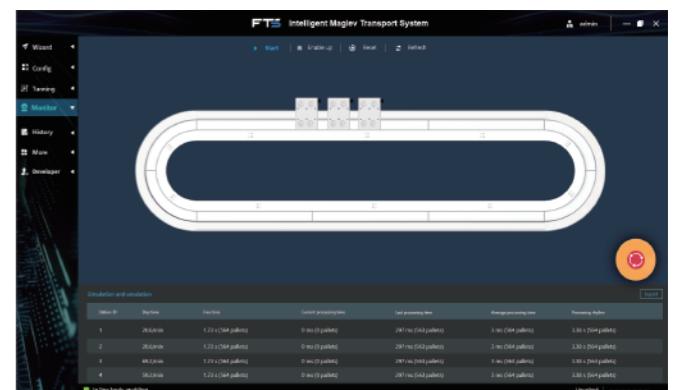
Parallel Debugging

- Support multi-terminal parallel debugging, expediting the delivery time
- Support workstation teaching functionality.

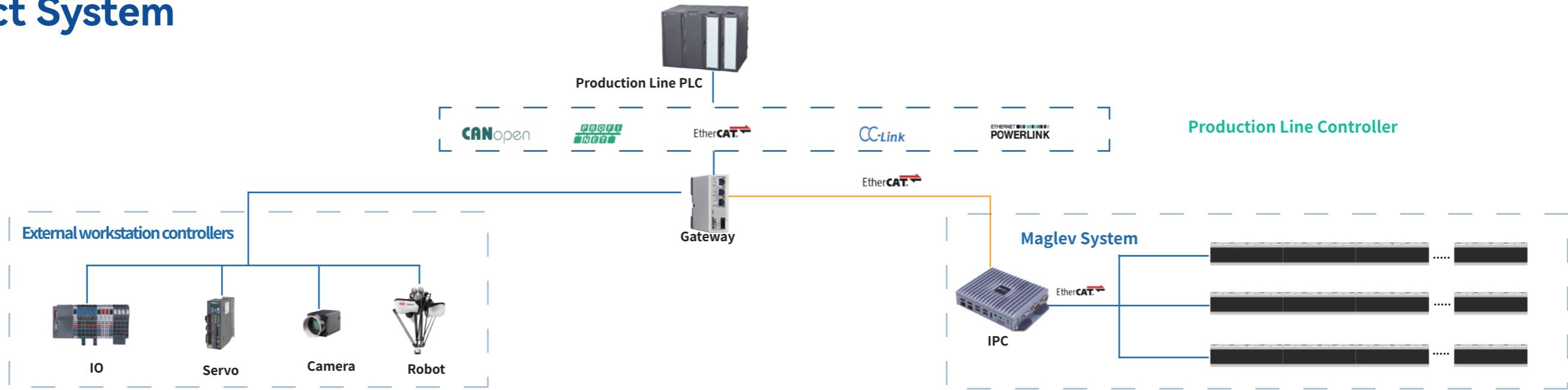


System Simulation

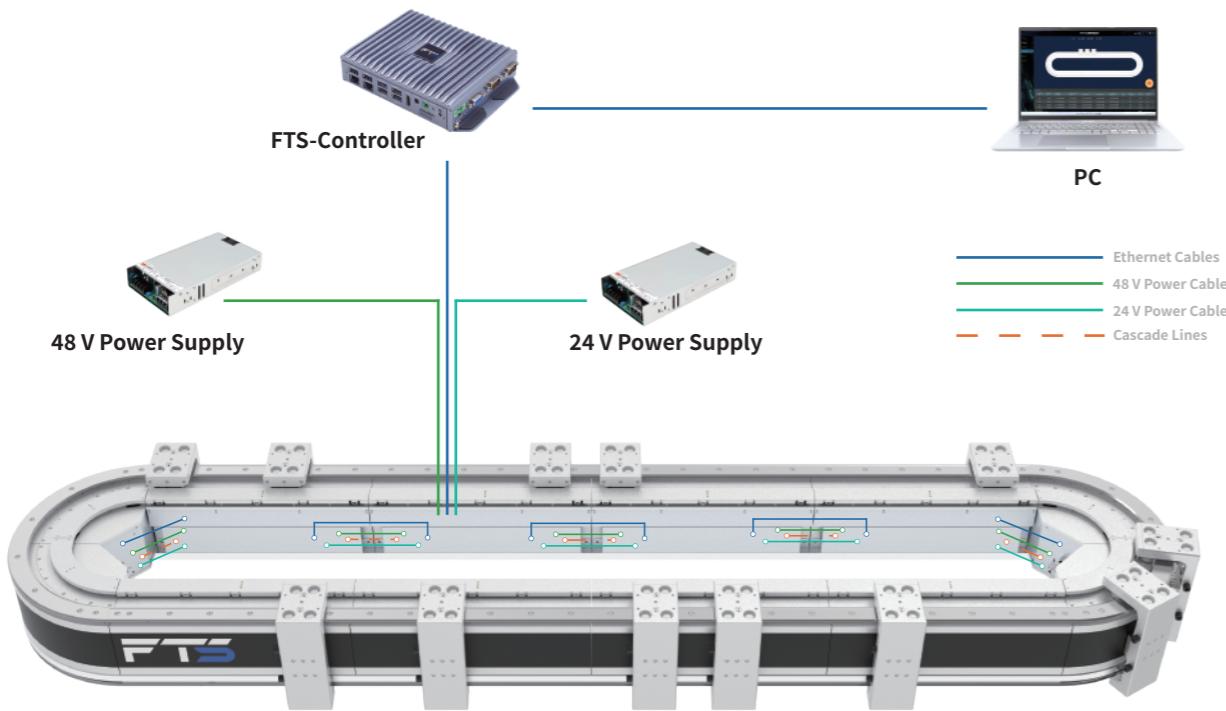
- Sandbox practice for advance planning.



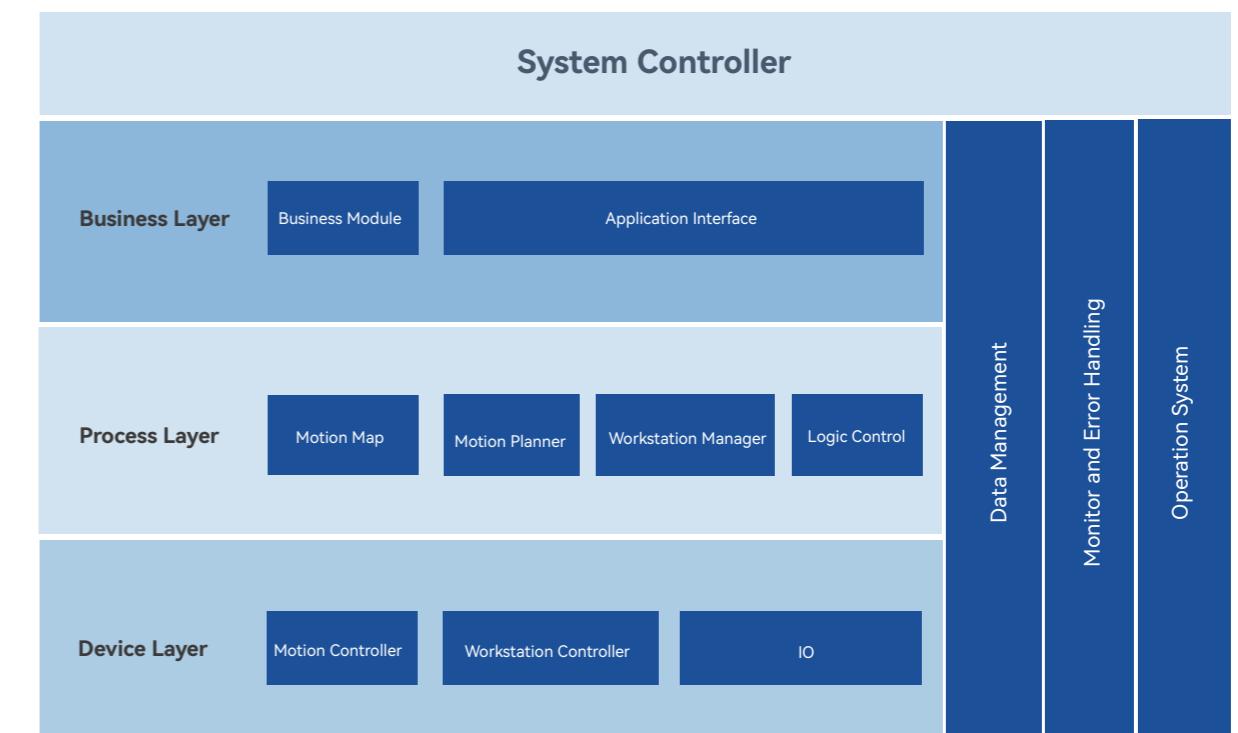
Product System



Hardware System



Software System



Overview of FHS Maglev Solutions

FHS Maglev R&D Center focuses on developing core technologies for maglev systems and providing turnkey solutions.



System-Level Design

By combining expertise in system engineering, mechanics, electronics, industrial design, software, motor drives, and intelligent sensing, high-quality and cost-effective maglev conveyor solutions are provided.



Professional R&D Team

Over 50% of the engineers hold master's or doctoral degrees. With experience from more than 3,000 projects, professional and optimized solutions are available to meet diverse industry requirements.



Efficient Delivery Process

Modular design and integrated solutions enhance operational efficiency, reduce system complexity, improve commissioning, and accelerate delivery timelines.



Reliable Quality Assurance

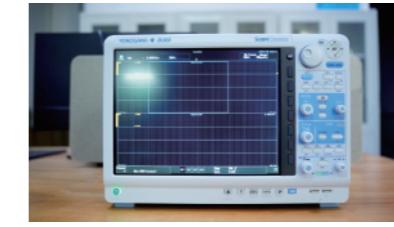
The rigorous V-model IPD development framework ensures strict control across all process stages, from concept to validation, providing dependable and high-performing products.

Testing Facilities

Comprehensive testing facilities ensure that all products meet stringent requirements for performance, functionality, and reliability.



Motor Drive Test Bench



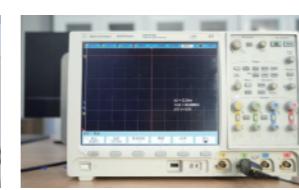
Waveform Recorder



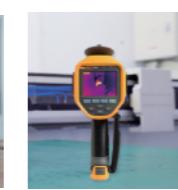
Repeatability Test



Laser Displacement Sensor



Oscilloscope



Infrared Thermometer



Temperature Rise Test



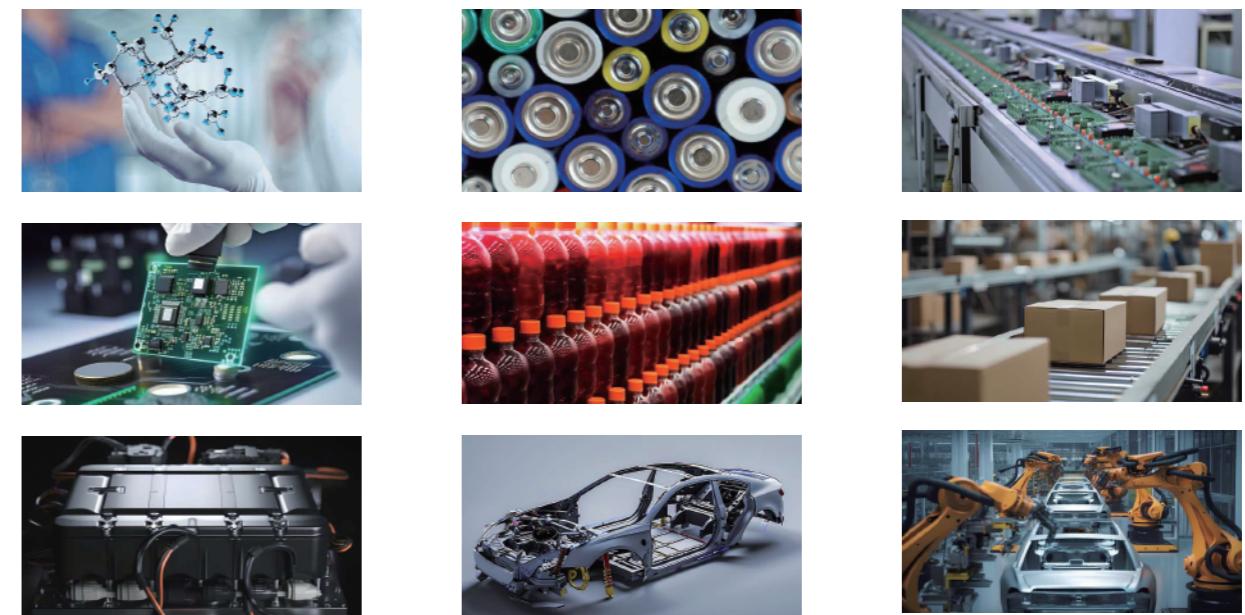
Production Inspection

To guarantee exceptional product performance and reliability, all maglev components undergo stringent inspections. Key metrics such as CTF dimensions, as well as the linearity, parallelism, and flatness of assembled units, are meticulously verified using advanced tools and methods.

3D Inspection		Laser Measurement	
Ring Fixed Block Size Inspection	Mover Size Inspection	Straightness Inspection	Straightness Inspection
			
Articulated Arm Inspection		Micrometer Inspection	
Lower Guide Rail Flatness Inspection	Upper Guide Rail Flatness Inspection	Upper and Lower Guide Rail Parallelism Inspection	Lower Guide Rail Assembly Parallelism Adjustment
			

Applications

The FTS maglev transport lines reach a maximum speed of 5 m/s, supports loads up to 5000 kg, and achieves repetitive positioning accuracy of ± 0.005 mm. It is widely used in industries such as lithium-ion batteries, automotive, medical, 3C, and semiconductors, providing intelligent, flexible, and high-value solutions for smart manufacturing.



Global Service Network

Global Service & Partner Network



- Fast response** (Icon: 24/7 clock)
- 1-year warranty** (Icon: Shield with checkmark)
- After-sales service in **10+** countries** (Icon: People)
- Spare parts warehouses for quick global delivery** (Icon: House)

